follow-up CT scan in the first two to seven days is useful to show progression or resolution of the hepatic lesion. If logistic difficulties in adhering to these principles are anticipated, then an exploratory procedure should be done at the outset.

Hemobilia and bile leakage are two rare complications of nonoperative therapy. In collected series, virtually no deaths attributable to the hepatic injuries have occurred, underscoring the importance of careful patient selection and close monitoring.

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Repair and Follow-up of Leg Arteries With Vein Grafts

ABOUT 80% OF LEG arterial reconstructions are done for ischemic rest pain, pedal ulceration, or gangrene. The best conduit for infrainguinal revascularization is an autogenous vein. Unfortunately, vein grafts can fail with resultant ischemic pain or additional tissue loss.

Options for patients with thrombosed infrainguinal vein grafts are all unsatisfactory, but treatment must be undertaken. Thrombolysis is expensive and carries a serious complication rate of 15%. It is initially successful in restoring graft patency in only about 60% of thrombosed grafts. Adjunctive graft revision is also often required. Less than half of grafts successfully lysed remain patent at one year. Replacing a thrombosed vein graft with a prosthetic graft yields similarly poor patency rates. A new autogenous vein graft is the best option, but such operations are technically difficult. They often require harvesting arm veins or lesser saphenous veins, operative sites may be scarred, and one or more venovenostomies may need to be done to achieve a conduit of adequate length. Obviously, the prevention of vein graft thrombosis is desirable.

Nearly 80% of vein graft failures result from a stenosis in the graft itself or its inflow and outflow arteries. Graft lesions typically occur near the proximal or distal anastomoses or at valve sites and most frequently develop during the first 24 months after implantation. Native artery lesions usually occur later.

Clinical follow-up alone is inadequate for identifying grafts at risk for near-term thrombosis. Many grafts fail without premonitory changes in the pulse or preceding symptoms. Interestingly, vein grafts fail just as frequently in limbs with stable, serially obtained, ankle:brachial systolic blood pressure indices as in limbs with deteriorating values.

The propensity for vein grafts to fail unpredictably is a complication that can be largely avoided. A program of vascular laboratory surveillance using duplex ultrasonography can reliably identify stenoses in vein grafts or inflow and outflow vessels. Vein grafts monitored in this way and appropriately revised have a substantially improved overall patency rate compared with grafts observed and revised based on recurrent symptoms or deteriorating physical findings or blood pressure differentials. Grafts revised before thrombosis occurs appear to have late patency rates equal to those of vein grafts that never develop a detectable stenosis and never require revision. These patency rates exceed 80% at five years.

For in situ vein grafts, a peak systolic velocity of less than 45 cm per second in the distal portion of a 3- to 4-mm graft is considered a marker for short-term graft failure. Such grafts typically have a stenosis identified by angiography. Unfortunately, this velocity value is not absolute as many vein grafts, both in situ and reversed, will have a greater than 50% stenosis despite peak systolic velocities of 45 cm or greater per second. Conversely, as many as 20% of reverse grafts may have a velocity of less than 45 cm per second in the distal portion of the graft with no detectable stenosis. As focal stenosis appears to precede most graft failures, screening for stenosis is becoming the standard method of vein-graft duplex surveillance. A peak systolic velocity of two or more times the peak systolic velocity in the immediately preceding portion of the graft, or 200 cm or more per second, reliably indicates greater than 50% stenosis at the site of the high velocity.

Although a few vein grafts may remain patent for prolonged periods despite high-grade lesions, failure is expected. High-grade vein graft stenoses should be repaired when identified in appropriate patients. Given the propensity for vein grafts to fail early, a program of graft surveillance using duplex ultrasonography every three to six months in the first two years postoperatively is prudent. If the graft remains patent without the need for revision during this time, surveillance can probably be extended to yearly.

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Current Status of Pancreas Transplantation

ADVANCES IN IMMUNOSUPPRESSION, refinements in surgical techniques, and developing methods to assess the presence of rejection have led to a resurrection of pancreas transplantation in the past decade. Current graft survival rates are comparable to the other solid organ transplants. Recent reports have documented pancreas graft survival rates as high as 92% at 15-month follow-up. Thus, pan-